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ABSTRACT

The Cooperative Extension faculty in Ohio established a correspondence course for new 4-H leaders. The course included topics designed to meet the most significant needs of the leaders. This study had as its objectives: (1) to evaluate the effectiveness of the course by determining whether knowledge about 4-H and desirable practices performed in 4-H clubs would differ between leaders who participated and those who didn't, (2) to explore relationships which may exist between the leaders' knowledge of 4-H and the performance of desirable practices in their clubs, and (3) to compile and summarize demographic data on the new 4-H leaders. One county was selected from each of Ohio's ten Extension administrative areas. County faculty mailed the course lessons at regular intervals to leaders in the experimental group. Leaders in neither the experimental nor the control group knew that they were involved in a research project. The new leaders' knowledge about 4-H was measured by a 20-item multiple choice test. A forced-choice instrument was used to determine the extent to which desirable practices were performed, and a series of 12 questions sought demographic data. Conclusions are: (1) The course was an effective teaching tool; (2) Increased knowledge had not transferred to the practice; (3) A 61% response rate was an adequate representation of the entire population. (CK)

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ABSTRACT

THE EFFECTIVENESS OF A CORRESPONDENCE COURSE FOR NEW 4-H LEADERS

A Dissertation

by

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One of the major concerns of Cooperative Extension faculty who work with the 4-H program is to satisfy the educational needs of new volunteer 4-H leaders. Extension faculty have always searched for new methods and techniques--particularly to meet the needs of new leaders who are unable or unwilling to attend meetings.

In the autumn of 1969 a correspondence course for new 4-H leaders in Ohio was developed by a committee of area 4-H Extension faculty and Miss Beatrice Cleveland, assistant state leader, 4-H. The availability of this innovative technique that winter made it possible to test its effectiveness experimentally. Seldom has a new Extension method been exposed to the rigors of a carefully controlled experimental design.

The correspondence course included topics which were felt by its designers to meet the most significant needs of new 4-H leaders. The titles of the five lessons were:

You and 4-H--What It's All About

Your Leadership Team, Working With Boys and Girls

Tools and Techniques

Your Club Has Meetings

Program Ideas Add Zip and Zest

Each lesson was printed and illustrated on three or four eight and one-half by eleven-inch pages. Accompanying each lesson was a single page quiz sheet which the new 4-H leader was encouraged to complete and return to his county or area Extension agent.[1]

Objectives

This study sought to achieve three major objectives. First, to evaluate the effectiveness of the correspondence course by determining whether knowledge about 4-H and desirable practices performed in 4-H clubs would differ between 4-H leaders who participated in the correspondence course and those who did not participate. In addition, personal opinions about the course would be sought from both participants and non-participants.

The second major objective was to explore for relationships which may exist between the leaders' knowledge of 4-H and the performance of desirable practices in their clubs and certain characteristics of the leaders and their counties.

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[1]Copies of the complete course may be obtained from the Ohio state 4-H office, 2120 Fyffe Road, Columbus, Ohio, 43210.

The third objective of the study was to compile and summarize the demographic data obtained from the new 4-H leaders as a means to describe them. These data could possibly be used as a foundation for subsequent longitudinal studies of Ohio 4-H volunteer adult leadership.

Methodology

One county was randomly selected from each of Ohio's ten Extension administrative areas. The county faculty and supervisory personnel for these counties agreed to assist with the research. The names of all new 4-H leaders who volunteered in the ten counties between July 1, 1969 and May 1, 1970 were mailed to the researcher who assigned each sampling unit to either the experimental or to the control group. Sampling units were assigned as one means to avoid having the leaders become aware of their involvement in research. New leaders in the same club and new leaders who were married couples were assigned to the same sampling unit.

County Extension faculty were asked to mail the correspondence course lessons, accompanied by their cover letter, at regular intervals, to leaders in the experimental group (and to complete the mailing before July 1, 1970) and to avoid having the control group become aware of the lessons. Later questions by the researcher showed that leaders in neither group knew that they were involved

in a research project before they received the questionnaire. No other changes were made in educational programs ordinarily conducted in the sample counties for their new 4-H leaders. Subsequent tests showed that the experimental and control groups did not differ significantly in their Extension contacts such as visits by Extension faculty, phone calls or meetings.

A posttest-only control group design was utilized to assure the validity of the study's experimental portion of its first objective. Telephone interviews with a subsample of fifty subjects obtained their opinions about the correspondence course. The analyses pertaining to the second objective utilized the ex post facto (correlational) design, while the third objective was realized through descriptive procedures.

The new leaders' knowledge about 4-H was measured by a twenty-item multiple choice test which was developed by the researcher in cooperation with the author of the correspondence course lessons. A fifty-item test was originally developed and validated for content by Miss Cleveland and other members of the Ohio 4-H staff. A trial of this test was conducted with forty-nine 4-H leaders (from a sample of 120) in two non-experimental counties. The results of an item analysis program of the Ohio State University Center for Measurement and Evaluation applied to these responses were used in reducing the trial test to

the twenty-item final instrument. These twenty items made up the first part of the questionnaire used for data collection. An effort was made to avoid a "test appearance" to this part of the questionnaire. One point was scored for each correct response to a question; the possible range of scores was thus zero to twenty.

A forced-choice instrument was developed by the researcher to quantify the second dependent variable in the study--the extent to which desirable practices were performed in the 4-H clubs of the new leaders. Five state 4-H staff members and Ohio's ten area 4-H Extension agents formed a jury to provide the judgments essential to this instrument's development. The final instrument consisted of ten pairs of statements, each statement being a description of a desirable 4-H club practice or condition. Both statements in each pair were actually carried out in 4-H clubs (according to the jury) to the same degree--they were equally "applicable." One statement in each pair, however, was associated with an "ideal" 4-H club to a greater extent (again according to the jury) than the other statement in the pair. Thus for each "ideal" statement a respondent chose, he scored one point on this instrument. Scores thus could range from zero (less effective) to ten (ideal). This instrument was the second section of the questionnaire. Respondents were asked to be

sure to choose the one statement in each pair that best described their own 4-H club situation.

A series of twelve questions seeking demographic data from respondents made up the third section of the questionnaire. The questionnaire was pre-tested with a small number of non-experimental new 4-H leaders before its final printing.

A total of 360 questionnaires were mailed on July 17, 1970. Follow up letters were sent to non-respondents by most of the ten cooperating agents about August 1; a second questionnaire was mailed to non-respondents as of August 17. On September 21 the 219th, and final, questionnaire was received. This provided a response rate of about sixty-one percent.

Telephone interviews were conducted with a randomly selected sub-sample of fifty of the original list of leaders; twenty-one of these were non-respondents.

All responses were coded and transferred to data processing cards. Most of the statistical analysis was done utilizing appropriate programs available through the Ohio State University Instruction and Research Computer Center. In all tests for statistical significance the decision level was .05. In other words, for a specific result to be considered as statistically significant, its occurrence by chance needed to be calculated as less than one in twenty.

Findings

Although the questionnaire return rate of sixty-one percent was considered as good from lay respondents, it did not provide an adequate basis for generalizing with confidence to the entire group of subjects or to all new 4-H leaders in Ohio from which the subjects were randomly drawn. Were there differences between early and late respondents? Were there differences between respondents and non-respondents?

A series of t-tests were calculated on the variables of age, years of school, number of other youth groups worked with, and total Extension contact by the leader. The first t-tests compared 106 early (before August 4) and 113 late respondents on these variables; no significant differences were found. A second series of t-tests compared the 106 early respondents with the twenty-one non-respondents for whom data were obtained by telephone. Again no significant differences were found.

A series of chi square tests were calculated on the nominally measured variables of whether the leader had been a 4-H member, sex, marital status, whether leader's children were in 4-H, whether the 4-H club was led only by new leaders, and the factor most significant in the leader's decision to be a 4-H leader. As with the t-tests, none of the calculated chi squares was large enough to be significant.

These tests demonstrated that differences, if they existed between the time-of-response groups, were not great enough to occur other than by chance. The conclusion reached was that the groups were enough alike to permit findings based on respondents to be generalized to the entire sample of new 4-H leaders in the ten counties. Random selection of the ten counties made generalization possible to all new 4-H leaders in Ohio in 1969-70.

Objective 1

The first two hypotheses of this study were formulated to test experimentally whether new 4-H leaders' participation in a correspondence course designed for them would result in greater knowledge about 4-H (Hypothesis 1) and/or the performance of desirable practices to a greater extent in the new leaders' 4-H clubs (Hypothesis 2). Table 1 summarizes the results.

TABLE 1

RESULTS OF TESTING HYPOTHESES 1 AND 2

Hypothesis	Mean Scores Experimental n = 124	Mean Scores Control n = 95	Test Results	Decision
No. 1 - Knowledge	11.00	9.77	F = 8.17	.005
No. 2 - Practices	4.92	5.14	t = -1.41	n.s.

This table shows that participation in the correspondence course caused new 4-H leaders to demonstrate significantly greater knowledge about 4-H than those who did not participate in it. An F test was used in this statistical calculation in order to make it possible to test simultaneously for interaction of sex and treatment while testing for treatment effects. The reason for choosing sex as a variable will be explained later.

Table 1 also shows that performance of desirable practices in the new leaders' 4-H clubs was not affected by participation in the correspondence course. As a matter of fact, the t value, though not statistically significant, was contrary to the hypothesized direction. A low reliability coefficient of -.146 with the Kuder-Richardson Formula 20 calculated from the results of the forced-choice instrument, however, may have jeopardized the value of that instrument as a reliable measure of 4-H club practices.

Opinions of new 4-H leaders about the correspondence course were obtained via the telephone interviews. No reference was made to the correspondence course in the questionnaire or its cover letters. This was necessary to avoid sensitizing respondents to the correspondence course research.

Several methods were employed in the research to avoid the Hawthorne effect and to determine whether those

efforts were successful. Forty-four of the telephone interviewees were asked whether they knew they were involved in a research project prior to receiving the questionnaire; all said they did not. None of the interviewees who had been in the control group indicated that they were aware that a correspondence course existed. County Extension personnel stated that they had no evidence of contamination.

Twenty-eight telephone interviewees who were in the experimental group were asked to what extent they actually read the correspondence course lessons. Twenty-two (78.5%) said that they read "about half" or more of the materials. When asked to indicate how helpful the course was, nineteen (67.8%) replied "some" or "very." Twenty-three of the twenty-seven respondents said they would suggest to their County Extension faculty, if asked, that the correspondence course be continued. Several suggested that the lessons be sent during the fall or winter (most were mailed between March and July in the study).

Sixteen control group subjects were interview respondents. The researcher briefly explained the correspondence course to them and asked if they would have appreciated receiving the lessons. Only one person answered negatively, and that leader had already decided to drop out of 4-H work. When asked to what extent they

would read the lessons if they received them, eleven of the sixteen said "completely."

The attainment of the study's first objective demonstrated that participation in the correspondence course did increase the participants' knowledge of 4-H, but had no effect on the performance of desirable practices in their 4-H clubs. Participants' evaluations of the correspondence course were favorable and they did read the lessons mailed to them; non-participants' anticipation regarding such a course was also positive.

Objective 2

The remaining twenty-two hypotheses of the study were formulated to attain the second major objective which sought to explore, in an ex post facto manner, relationships between certain variables and the new leaders' knowledge about 4-H and the extent to which desirable practices were performed in their 4-H clubs. Table 24 summarizes the results of testing all but two of these hypotheses.

From Table 2 it can be noted that only one cell in the table shows a statistically significant result. Females scored higher on the knowledge test than did males. All other tests of hypotheses resulted in no significant differences or relationships. Since all these hypotheses (except the sex-knowledge one) were ruled out as factors

related to the two dependent variables, they were not considered as possible interacting variables or as covariates when the two experimental hypotheses were analyzed under the discussion of the first objective. Since sex was shown by Table 2 to have been a possible factor affecting knowledge scores, it was analyzed in conjunction with the treatment as discussed earlier. No interaction was shown to exist between sex and treatment effects as related to knowledge.

All but the final two variables in Table 2 will be further discussed later. "County faculty staff situation" was determined on the basis of the number and stability of the faculty situation in each of the sample counties. The first ranked county had two 4-H faculty members for most of the year from July 1, 1969 through June 30, 1970; the last ranked county lacked a 4-H faculty member during that year. Mean scores on the two dependent variables were determined for each sample county and then were ranked from high to low. These two rankings were then compared using the Spearman rank correlation coefficient.

The State Extension Management Information System was the source for data on the number of manhours devoted to 4-H objectives in the sample counties. A Pearson product-moment correlation coefficient was calculated

TABLE 2

SUMMARY OF TESTING ASSOCIATIONAL HYPOTHESES

Variable	Knowledge: Mean Score[a]	Knowledge: Statistical Test and Decision	Practices: Mean Score[a]	Practices: Statistical Test and Decision
Sex		t = 2.01, (.05)		t = 0.19, n.s.
Female	10.72		5.02	
Male	9.75		4.98	
Years of School		r = .127, n.s.		r = -.054, n.s.
Extension contact		r = .112, n.s.		r = -.014, n.s.
Was leader a 4-H'er?		t = -0.11, n.s.		t = -0.25, n.s.
Yes	10.44		4.99	
No	10.49		5.04	
Family income		r_s = .714, n.s.		r_s = .086, n.s.
Age		r = -.040, n.s.		r = .043, n.s.
Number of other youth groups worked with		r = .012, n.s.		r = .072, n.s.
Place of residence		F = 0.381, n.s.		F = 0.543, n.s.
County faculty staff situation		r_s = .036, n.s.		r_s = .133, n.s.
County manhours devoted to 4-H		r = .100, n.s.		r = -.430, n.s.

[a]Where available.

from these data and mean scores on the two dependent variables for each county.

Hypothesis 13 sought to answer the question "Will leaders' knowledge scores be associated positively with their practices scores?" and thus "is there evidence that knowledge may be transferred to practices?" A product-moment correlation coefficient between these two variables of -.065 showed that no significant relationship existed and that the above questions received negative answers.

Finally Hypothesis 2 asked whether 4-H club practices would differ between a club led only by new leaders and a club led by both new and experienced leaders. The mean practices score of respondents who led 4-H clubs in cooperation with experienced leaders was 5.10, while the mean score for those who led clubs alone was 4.73. The t value calculated from these data was 1.84, not statistically significant.

Objective 3

Demographic data obtained from subjects who returned questionnaires and the twenty-one additional respondents as a result of telephone interviews were summarized to attain the third major objective of the study. Each variable is discussed here briefly.

Had the leader been a 4-H member? Yes, 132 (fifty-five percent); no, 108 (forty-five percent).

Sex: Male, sixty-five (twenty-seven percent); female, 175 (seventy-three percent).

Age: Range was from seventeen to sixty with a mean of 33.4; 12.7% were under 21, 43.8% were between thirty-one and forty.

Number of years of formal schooling: Mean was 12.5 years; 135 (57.4%) had completed high school.

Marital status: Thirteen percent (thirty-one) were single, 86.2% (206) were married, 0.8% (two) were divorced, and none were widowed.

Family income: The median was $9,000; six (2.7%) replied "under $3,000" and twenty-two (10.0%) said their income was "over $15,000."

Residence: Nearly half (48.5%) lived in a rural non-farm home; 38.4% lived on farms. None lived in a city of 50,000 or more; in this respect the random sample may have been biased since nearly six percent of Ohio's 4-H members live in cities that large.

Work with other youth groups: Nearly half (47.6%) of the new leaders work with no other youth group. The largest number was six reported by one leader. The average was 0.9.

Extension contact: Table 3 summarizes the four categories of contact with Extension reported.

TABLE 3

SUMMARY OF EXTENSION CONTACT BY NEW 4-H LEADERS

Category	Percent Reporting Zero	Range	Mean
Home visits	64.3	0 - 9	0.87
Office visits	28.8	0 - 35	3.31
Phone calls	30.9	0 - 50	3.95
Extension meetings	23.5	0 - 25	2.96
Total contact	5.9	0 - 81	10.81

The large percentage of leaders who had very little direct contact with Extension programs likely was due in part to the fact that many new 4-H leaders begin as an "assistant" to an experienced leader who assumes the task of contacting the Extension office.

Were the leader's children 4-H members? Yes, 152 (63.3%); no, eighty-eight (36.7%).

Were there experienced 4-H leaders in the new leader's club? Yes, 153 (65.1%); no, eighty-two (34.9%).

Most important factor in leader's decision to volunteer: Ninety-one respondents (40.3%) said another 4-H leader asked them. About equal numbers--forty-five (19.9%) and forty-three (19.0%), respectively--said they "just knew about 4-H" or that they were asked by a child.

Only ten persons replied that the deciding factor was a request by an Extension faculty member. Seven who checked the "other" category said they had enjoyed 4-H as a member and wanted to continue to work with it.

The fifty telephoned leaders were asked whether they planned to be a leader the following year. Two-thirds said they did, eleven said "no" and the remaining six were undecided.

Other Findings

An important requirement of a correspondence course is that there be interaction between the teacher and the student. In this research no instructions regarding interaction were given the county Extension agents who mailed the lessons to the new 4-H leaders in the experimental group; they were asked to handle the correspondence course as they would if no research were being conducted. Leaders were encouraged, but not required, to complete and return the quiz sheet accompanying each lesson.

Interviews with county Extension personnel showed that there was very little interaction between faculty and leaders other than the cover letter that accompanied each lesson. Direct, personal contact was virtually non-existent. Only eight of nearly 200 experimental group leaders completed and returned all five quiz sheets.

In order to test statistically whether a difference in knowledge scores was associated with the number of quiz sheets returned, a one-way analysis of variance test was used. It showed that the differences in scores was not significantly different even though the eight who returned all five quiz sheets had a mean knowledge score of 12.8 while those who returned two to four sheets had a mean score of 11.9 and those who returned only one had a mean score of 10.6.

One of the ten area 4-H faculty in Ohio assisted four counties in providing the correspondence course for their new 4-H leaders. He did so independently of this research, and, of course, in non-experimental counties. He required the return of one lesson's quiz sheet before the next lesson was mailed, and he wrote comments on the returned quiz sheets before mailing them back to the leaders. Though his attrition rate was high (about sixty-five percent), his proportion of those completing the course (eighteen of fifty-one who "enrolled") was much higher than was the case in this study where each lesson was mailed on a regular schedule.

County Extension personnel who assisted with the research were asked to help evaluate the correspondence course. Their reactions were positive even though they felt this method saved them neither time nor effort. Most thought the lessons might be provided to a more select

audience--perhaps new leaders who were not able or willing to attend meetings. And several felt that there was a need to personalize the course more.

The twenty-nine leaders in the telephone interview sub-sample who had returned questionnaires were asked whether they sought help in answering the knowledge test questions. If they did seek help, they were asked to recall where they looked. Seventeen said they did seek help. Three went to an encyclopedia, nine went to their Ohio 4-H Advisors' Handbook, and five looked in their correspondence course materials. Twelve did not seek help. Statistical analysis of these findings showed that those who sought help scored significantly higher on the knowledge test than those who were not so resourceful. A significant difference was found to exist in knowledge scores according to the source of help; the correspondence course lessons were the most fruitful source and the encyclopedia the least.

State 4-H Extension faculty have developed a number of pieces of printed material for Ohio's 4-H leaders. Two basic publications that they feel all 4-H leaders should have are the Ohio 4-H Advisors' Handbook and the Ohio 4-H Advisors' Program Book. The telephoned subsample was asked about these publications; useable responses were obtained from forty-four leaders.

Twenty-eight (63.6%) of the forty-four had a copy of the handbook. Two-thirds of these twenty-eight said they rated its usefulness as being of "some" use or "very useful."

Thirty-four (77.3%) of the respondents had a copy of the program book; only forty percent rated its usefulness in the "some" or "very" categories. Since the program book included several work sheets for planning annual club programs and specific meetings, it was appropriate to seek information as to the actual use made of the publication. When asked what proportion of the work sheets were actually written on, only one-third of the leaders said they used "about half" or more of the pages.

Conclusions

The following list of conclusions was formulated from the findings of the study.

1. New 4-H leaders in Ohio who participated in a correspondence course designed for them demonstrated greater knowledge about 4-H than did non-participants. The correspondence course was an effective teaching tool.
2. Participation in the correspondence course had no effect on the extent to which desirable practices were performed in the leaders' 4-H clubs. Increased knowledge had not transferred to practices.

3. New 4-H leaders who participate in the correspondence course can be expected to read the lessons and evaluate them favorably. Evidence supporting this conclusion was provided by non-participants who said they would have appreciated receiving the lessons and thought they, too, would read the material.
4. With no specific instructions to Extension faculty regarding the importance, in correspondence instruction, of interaction between them and the participants, such communication can be expected to be at a very minimal level.
5. Both lay leaders and professional Extension faculty recognize that the flexibility of correspondence instruction permits lessons to be sent to a select audience at convenient times, and that there needs to be greater interaction between faculty and leader.
6. Female new 4-H leaders can be expected to demonstrate more knowledge about 4-H than males.
7. Sex of the new leader probably would not be a factor in affecting the extent to which desirable practices are carried out in 4-H clubs.
8. The following factors apparently do not affect either the new leaders' knowledge of 4-H nor the extent of performance of desirable practices in their 4-H clubs:
   a. educational attainment of the leader
   b. extent of contact between the leader and county

or area Extension programs and personnel

c. whether the leader had been a 4-H member

d. family income of the leader

e. age of the leader

f. number of other youth groups with which the leader worked

g. leader's place of residence

h. county Extension faculty size and stability

i. time devoted to 4-H by county Extension faculty.

9. Most respondents can be expected to be resourceful as they seek answers to questions about 4-H; they apparently do seek help from available Extension printed materials. The 4-H correspondence course lessons seemed to be a fruitful source of assistance.

10. New 4-H leaders in Ohio appeared not to utilize available printed material to the extent expected and desired by Extension faculty.

A substantial proportion of new 4-H leaders did not have copies of two publications deemed by state 4-H faculty as essential to 4-H leaders; more than one-third did not have the Ohio 4-H Advisors' Handbook, and almost one-fourth did not have the Ohio 4-H Advisors' Program Book. Those who did have them thought they were useful, but the worksheets in the program book were actually utilized by a small proportion of the leaders--only one-third said they used half or more of its worksheets.

11. The success of the controlled experimental portion of this study should encourage other researchers to use similar research designs.
12. Instruments to measure 4-H leaders' knowledge and the extent of performance of desirable 4-H club practices were successfully developed, though some question existed regarding the reliability of the practices instrument.
13. A sixty-one percent response rate from the subjects in this study appeared to be adequate to insure adequate representation of the entire population.

Recommendations

The recommendations of this study have been formulated from the findings of the study, from the examination of related research and practices, and from the judgment of the writer.

1. The correspondence course for new 4-H leaders in Ohio should be continued. The following recommendations should improve its effectiveness.
   a. County and area Extension faculty should be more selective in offering the course to new leaders. The course should be explained to interested new 4-H leaders as one of several alternative educational methods rather than as an additional method for all new leaders. This should be done soon after the leader volunteers. Each leader should formally decide whether to participate in it.

b. Once the leader "enrolls" for the correspondence course there should be personal follow up and interaction between the Extension faculty and the new leader. The leader should be expected to complete and return the quiz sheets; the faculty should have a planned procedure for follow up upon their return. A telephone call to the leader may be more effective and efficient than a mailed response. If a certain period of time has elapsed since a lesson was mailed, and the leader has not returned its quiz sheet, the faculty should follow up, either by mail or by telephone.

c. The above suggestions should be developed into a set of guidelines for Ohio county and area Extension faculty who are responsible for conducting educational programs for 4-H leaders.

d. The state 4-H staff should prepare a record form for agents' use in administering the course. It should provide columns to record the mailing of lessons, the return of quiz sheets and other communication with the participants.

e. The state 4-H staff should develop and print an attractive certificate denoting successful completion of the correspondence course and distribute it to county and area faculty for their use.

2. Further research should be conducted to test for the influence that interaction between faculty and leader might have on new leaders' knowledge and 4-H club practices.
3. The knowledge test developed in this research should be offered to other researchers for their use in determining new leaders' knowledge of 4-H, or in identifying educational needs of 4-H leaders.
4. Further research is needed to determine whether the practices instrument developed in this study does in fact discriminate between 4-H clubs of differing "qualities." County Extension faculty could rate the quality of the 4-H clubs of respondents included in this study and then comparisons could be made with those leaders' scores on the practices instrument.
5. A more sophisticated practices instrument might be developed using the same "forced-choice" technique employed in this study. Computer scoring and analysis of such an instrument might possibly be used to offer suggestions for improvement to low scoring clubs.
6. In further research where 4-H leaders' knowledge is one variable, sex of the leader should be considered as an independent variable.
7. Longitudinal research should be conducted using the subjects identified in this research. Of particular interest would be studies on leader attrition--who

drops out, when and why. Additional data on the subjects would be required--occupation; kind of 4-H club led, its size, age, number of other leaders, number of junior leaders, and so forth.

8. The new leaders from an urban county or two should be asked to provide the same demographic data obtained from leaders in this study in order to determine whether the "rural bias" that resulted from the random selection of sample counties for this study was a threat to the generalizability of the findings.

9. State Extension 4-H workers need to put added effort into seeing that new leaders are furnished with the printed materials available to them. Special emphasis should be devoted to encouraging leaders to actually use the Ohio 4-H Advisors' Program Book.

10. Researchers planning educational studies with lay subjects should endeavor to conduct controlled experiments. Procedures, such as the posttest-only control group design utilized in this research, can be successfully employed with subjects involved in informal educational programs.

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